

1 14. (amended) The spinal fixation apparatus defined in claim  
2 [13] ~~17~~<sup>13</sup> wherein each of said first longitudinal rod and said second  
3 longitudinal rod includes a right angle bend.

1 15. (amended) The spinal fixation apparatus defined in claim  
2 [13] ~~17~~<sup>13</sup> wherein said stem clamp comprises a clamp body having an  
3 upper jaw and a lower jaw with a lateral throughbore passing  
4 between one edge of said clamp body, said throughbore  
5 telescopically selectively receiving said first [to] and second  
6 longitudinal rods, said clamp body including a transverse  
7 throughbore passing orthogonally through said upper jaw and said  
8 lower jaw with the portion of said transverse throughbore through  
9 said lower jaw having threads therein, said clamp body including a  
10 stem extending orthogonally therefrom, said stem clamp including a  
11 bolt means for threadedly engaging said threads to bring said upper  
12 jaw toward said lower jaw and constrict said lateral throughbore  
13 thereby securing said stem clamp to said longitudinal rod.

13 17. (amended) [The spinal fixation apparatus defined in  
claim 16 wherein] A spinal fixation apparatus for implantation on  
a spine comprising:

a first longitudinal rod for placement on the spine at  
one side of and generally parallel to the spinous process of  
the spine;

a second longitudinal rod for placement on the spine at  
the other side of and generally parallel to the spinous  
process of the spine;

a plurality of stem clamps mounted to said first  
longitudinal rod and said second longitudinal rod;

a plurality of C-clamps mounted to said stem clamps and  
to said first longitudinal rod and to said second longitudinal  
rod, said C-clamp comprising a clamp body having an upper jaw  
and a lower jaw with a lateral throughbore passing between  
said upper jaw and said lower jaw, said clamp body having a  
transverse throughbore passing orthogonally through said upper  
jaw and said lower jaw with the portion of said transverse  
throughbore in said lower jaw having threads therein, said C-  
clamp [includes] further including engagement means for  
engaging said C-clamp with said bone screw, said bone screw  
comprising a bolt head at a proximal end and a tip at a distal  
end, said bone screw having a threaded shaft between said  
proximal end and said distal end with said threaded shaft  
having a threaded, diametrically enlarged shoulder adjacent said  
bolt head and a threaded, diametrically reduced screw body

1 between said shoulder and said tip, the thread pitch for said  
2 threaded, diametrically enlarged shoulder being identical to  
3 said threaded, diametrically reduced screw body, said threaded,  
4 diametrically enlarged shoulder threadedly engaging said threads  
5 in said transverse throughbore in said lower jaw of said C-  
6 clamp thereby providing said engagement means for said C-  
7 clamp;

8 a plurality of bone screws mounted to said C-clamps, said  
9 bone screws being operable to secure said C-clamps to the  
10 spine; and

11 at least one cross-link plate interconnecting said first  
12 longitudinal rod to said second longitudinal rod.

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1 17 ~~18~~. 13<sup>(amended)</sup> The spinal fixation apparatus defined in claim  
2 [13] ~~14~~ wherein said stem clamp includes a lower jaw and an upper  
3 jaw, said lower jaw having an angular offset from said upper jaw,  
4 said angular offset being within the range on the order of about  
5 one to ten degrees.

1 18 20. <sup>13</sup> (amended) The spinal fixation apparatus defined in claim  
2 [13] ~~17~~ wherein said bone screw comprises a screw having a head at  
3 a proximal end and a tip at a distal end, said screw having a  
4 diametrically enlarged shoulder adjacent said head, said shoulder  
5 having a first set of threads, said screw including a shaft  
6 extending between said shoulder and said tip, said shaft being  
7 diametrically smaller than said shoulder and having a second set of  
8 threads, said second set of threads having the same thread pitch as  
9 said first set of threads.

1 20 22. (amended) The spinal fixation apparatus defined in claim  
2 [13] ~~17~~ <sup>13</sup> wherein said C-clamp includes a bone pin for temporarily  
3 mounting said C-clamp to the spine prior to inserting said bone  
4 screw, said bone pin having a handle and a pin extending therefrom,  
5 said pin having a reduced diameter to pass through said C-clamp and  
6 into the bone.

1 23 24. (amended) The method defined in claim [23] ~~25~~ <sup>22</sup> wherein  
2 said fabricating step [comprises] includes preparing said C-clamp  
3 as a pair of opposed jaws having a lateral throughbore therethrough  
4 for slideably receiving said longitudinal rod or said stem of said  
5 stem clamp, said preparing step including forming a transverse  
6 throughbore through said upper jaw and said lower jaw and creating  
7 a set of threads in the lower jaw portion of said transverse  
8 throughbore.

22  
1 25. (amended) [The method defined in claim 23 wherein] A  
2 method for providing fixation of a spine comprising the steps of:  
3 obtaining a longitudinal rod;  
4 preparing a plurality of stem clamps with stems extending  
5 therefrom;  
6 mounting said stem clamps to said longitudinal rod;  
7 fabricating a plurality of C-clamps, said fabricating  
8 step [includes] including forming said plurality of bone  
9 screws with a first threaded section and a second threaded  
10 section, said first threaded section having a smaller diameter  
11 sufficient to pass through said transverse throughbore in said  
12 C-clamp, said second threaded section threadedly engaging said  
13 set of threads in said C-clamp thereby selectively clamping  
14 said C-clamp to said longitudinal rod and said stem;  
15 affixing said C-clamps to said longitudinal rod and to  
16 said stems of said stem clamps;  
17 forming a plurality of bone screws;  
18 securing said C-clamps to a spine with said bone screws;  
19 and  
20 tightening said stem clamps and said C-clamps thereby  
21 providing spinal fixation with said longitudinal rod.

24  
1 26. (amended) The method defined in claim [23] 25 wherein 22  
2 said obtaining step includes providing a second longitudinal rod  
3 and affixing said second longitudinal rod to the spine along with  
4 said longitudinal rod using said stem clamps, said C-clamps, and  
5 said bone screws.

27  
1 29. (amended) The method defined in claim [23] 25 wherein 22  
2 said forming step includes preparing threads on said bone screw for  
3 securely engaging bone with said threads, said preparing step  
4 including shaping said threads with a generally flat surface  
5 orthogonal to the axis of said bone screw, said flat surface being  
6 oriented to the outer surface of the bone as said bone screw is  
7 inserted into the bone.

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1 30. (amended) The method defined in claim [23] 25 wherein 22  
2 said affixing step includes obtaining a plurality of bone pins and  
3 ascertaining the placement of said longitudinal rod, said stem  
4 clamps, and said C-clamps prior to said securing step by mounting  
5 said C-clamps to the spine with said bone pins.

Please cancel claims 13 and 16 without prejudice.

REMARKS

Claims 14, 15, 17, 19, 20, 22, 24-26, and 30 have been amended  
by this paper to more particularly point out and distinctly claim